

Palermo, N. Y., 22nd; Westerville, Ohio, 20th. *Ducks*, Judsonia, Ark., 25th; Cresswell, Kan., flying E., 14th; S., 28th; Boise City, Idaho, 28th, numerous. *Snowbirds*, Monticello, Iowa, 27th. *Bobolinks*, Westerville, Ohio, 20th. *Meadow Larks*, first heard, St. Meinrad, Ind., 28th; Monticello, Iowa, 22nd; Somerset, Mass., 13th. *Prairie Chickens*, Monticello, Iowa, 10th; flying S., in large flocks, 22nd and 26th. *Mocking Birds*, Baxter Springs, Kan., 17th. *Robins*, Somerset, Mass., 13th; New Bedford, Mass., 13th. *Sparrows*, Somerset, Mass., 13th; New Bedford, Mass., 13th. *Sea Gulls*, Cincinnati, 27th, first appearance this season.

**INSECTS**—*Bees*.—Fayette, Miss., 4th; Martinsville, Ill., 11th to 13th, 18th, 22d to 26th; Milford, Ind., 18th, 19th, 20th. *Frogs*—piping, Milton, Fla., 5th; Sedgewick, Kan., 27th. *Butterflies*—Fayette, Miss., 26th. *Caterpillars*—Palermo, N. Y., 20th; Cleveland, Ohio, 19th.

**Polar Bands**.—3d, Ind., Va.; 5th, Ind.; 6th, Ind.; 7th, Miss., S. C.; 8th, Neb., N. H., N. J., Va.; 10th, N. H.; 12th, Va.; 15th, N. J.; 17th, Ind., Iowa; 18th, Ind., Va.; 19th, Dak., Ind.; 21st, Neb.; 23d, Ind.; 24th, Iowa; 25th, Va.; 27th, Va.; 29th, Ind.

**Sunsets**.—The characteristics of the sky as indicative of fair or foul weather for the succeeding 24 hours have been observed at all Signal Service stations. Reports 101 stations show 3,128 observations to have been taken; of these 58 were reported doubtful; 2,508 cases or 80.1 per cent. were followed by the expected weather, and 620 were not.

**Prairie Fires**.—1st, 2nd, 3rd, 4th, 5th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 21st, 22nd, 23rd, 24th, 25th, 27th, 28th, 29th, 30th, 31st.

**Meteors**.—1st, Southington, Conn., Woodstock, Md., Rowe, Mass.; 2nd, Woodstock, Md., Flushing, N. Y.; 3rd, Woodstock, Md., Wappingers Falls, N. Y.; 4th, Como, Ill.; 6th, Boise City, Idaho, Southington, Conn., Vevay, Ind., Kensico, N. Y.; 7th, Fall River, Mass.; 9th, New Orleans; 13th, Cresswell, Kan.; 14th, Boise City, Idaho; 17th, St. Louis and Oregon, Mo., Starkey, N. Y.; 23rd, Woodstock, Md., Oregon, Mo.; 24th, Sedgewick, Kan., Woodstock, Md., Rowe, Mass., Atco, N. J.; 27th, Davenport, St. Marys Home, Ind.; 28th, Hennepin, Ill., Woodstock, Md.; 31st, Yankton, Dak.; 24th, Corsicana, at 7h. 6 or 10 min., a large meteor appeared SE. 30° of zenith, moved west, and exploded at an elevation of about 30° like an ordinary rocket; color, greenish-blue, and very brilliant; vapor cloud floated west.

**Earthquakes**.—Yokohama, Japan, reported by J. W. Coles, U. S. Navy, U. S. Nav. Hosp. Yokohama, Japan, Nov. 22d, 3:50 p. m., severe shock of earthquake, lasting 5 sec.; 10:20 p. m., slight shock. 24th, 12:55 p. m., slight earthquake, 27th, 11:18 p. m., slight earthquake. 30th, 3:20 p. m., smart shock of earthquake, lasting 20 sec. Jan. 2nd, Louisa and Hanover counties, Va., about 7 p. m., slight shock accompanied by roaring sound. 8th, Cairo, Ill. 10:30 p. m., two slight shocks.

**Zodiacal Light**.—Southington, Conn., 1st, 3rd, 6th, 7th, 23rd, 24th, 25th, 28th, 29th; Monticello, Iowa, 23rd; St. Mary's Home, Ind., 3rd, 5th, 6th, 7th, 23rd, 24th, 29th; Great Bend, Kan., 3rd; Orono, Me., 29th, 30th; Somerset, Mass., 1st, 3rd, 5th, 6th, 23rd, 24th, 25th, 26th, 28th, 29th; Rowe, Mass., 29th; Cambridge, Mass., 1st, 3rd, 5th, 7th, 23rd to 26th, 28th to 30th; Clear Creek, Neb., 3rd, 5th, 20th, 22nd, 23rd; Freehold, N. J., 23rd, 28th; Atco, N. J., 26th, 28th, 29th; Waterburg, N. Y., 24th, 29th; Tybee Island, 21st to 23rd, 28th; Newbury, Vt., 3rd, 28th, 29th, 30th.

## SOLAR PHENOMENA.

**Sun Spots**.—The following observations, made by Mr. D. P. Todd, upon the spots of the sun, have been kindly communicated by Rear Admiral John Rodgers, U. S. N., Superintendent of the Naval Observatory: None visible on the 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 11th, 12th, 15th, 16th, 18th, 19th, 29th, 30th; on the 22nd, one group and six spots, both new; 23rd, the same; 24th, one group and twelve spots, six new spots; 25th, the same; 26th, one group and ten spots, two spots having disappeared by solar rotation; 29th, none, all having disappeared by solar rotation. At Iowa City, Prof. Hinrichs reports none on the 2nd, 4th, 5th, 6th, 7th, 11th, 12th (? cloudy,) 15th and 27th; two spots on the 22nd—one large one near the centre of sun; one group of five spots on the 24th; two spots on the 25th.

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Albert J. Meyer

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